

REMARKS

The Office Action dated April 28, 2004 has been received and duly noted.

Applicant respectfully submits that the latch ring 20 is shown in the figures, and that the general shape of the c-ring is apparent to those skilled in the art as having a substantially c-shaped configuration. Applicant submits that a c-ring as disclosed in the present application is a single body which has a circumferential length of more than 180° degrees and less than 360°. Applicant submits that showing the generally c-shape of a c-ring in a drawing should not be required, since those skilled in the art understand the general shape of a c-ring. Nevertheless, if the Examiner continues this objection, Applicant will add another figure for the c-ring 20.

The claims have been reviewed and amended to overcome the claim objections noted by the Examiner.

The pending claims were rejected as being anticipated by U.S. 6,609,734 and 4,516,795. Applicant submits that each of these cited references is directed to a connection which is substantially dissimilar to the connection of the present invention, and that the amended claims are patentably distinguishable from these references.

With respect first to the '734 Patent, Claim 1 has been amended to indicate that the projecting member and the guide recess guide the latch body and the at least one outer load flank for engaging each tubular member along a desired trajectory generally parallel to a load flank adjacent to the radially projecting member when the latch body is moved radially from an unlatched position to a latched position. This feature is clearly shown in the figures, and is disclosed at page 7, commencing at line 18. Unlike the present invention wherein the projecting member and guide recess thus move the entire latch body and the teeth or load flanks which engage each tubular member in a direction generally parallel to the adjacent load

flank, the connector as disclosed in the '734 Patent "rocks" the latch member, and the projecting member 12 does not serve to move the load flanks for engaging each tubular member along a desired trajectory generally parallel to the adjacent load flank. This difference is apparent by reviewing Figures 2 and 3 of the present case with Figures 1 and 2 of the '734 Patent.

The Examiner contends that the projecting member 12 of the '734 Patent extends radially outward substantially beyond the outer load flank on the tubular member, but Applicant submits that the projecting member 12 extends substantially to the same extent as the adjacent load flank on the tubular member. Most importantly, however, it is the curved member 40 in the '734 Patent which guides the latch body, and it is not the projecting member 12 and the guide recess which serve this function. Accordingly, Applicant submits that amended Claim 1 is patentably distinguishable from '734 Patent.

With respect to dependent Claim 3, this claim has been amended to recite that the radially projecting member is at least partially positioned within the guide recess when the latch body is in the unlatched position and the inner load flanks on each tubular member are radially spaced from the outer load flanks. The Examiner contends that the radially projecting member 12 is positioned within the guide recess when the latch body is in the unlatched position, but the inner load flanks of the '734 Patent on each tubular member are not spaced radially from the outer load flanks at that time.

With respect to Claim 4, this claim recites a shoulder on the latch body moveable by an actuator, with the shoulder angled to urge the latch body radially outward. The Examiner contends that a shoulder is formed by the curved outer surface of the latch body of the '734 Patent, as shown in Figure 1. First, Applicant submits that the curved surface 62 on the latch body cannot reasonably be considered a shoulder. More importantly, however, amended Claim 4 recites that

the shoulder is angled to urge the latch body and the at least one outer load flank for engaging each tubular member radially outward, which is contrary to the operation of the latch body in the '734 Patent. The curved surface 62 in the '734 Patent does not urge the load flank for engaging each tubular member radially outward.

With respect to Claim 6, the Examiner contends that the axially moveable cam member 40 of the '734 Patent urges the latch radially inward, as shown in the Figure 2. Amended Claim 6 recites an axially movable cam member for simultaneously urging the outer load flanks on the latch body for engaging each tubular member radially inward, with a cam member having a cam surface tapered at a substantially constant angle with respect to the latch body. This amendment patentably distinguishes Claim 6 from the cited reference, which does not urge the load flanks for engaging each tubular member simultaneously inward, and does not utilize a cam surface tapered at a substantially constant cam angle.

Dependent Claim 9 has been amended to recite that the latch body has a spring bias toward the unlatched position. Support for this amendment exists at page 10 commencing at line 13. The latch body of the cited reference is not spring biased toward the unlatched position.

With respect to Claims 10 and 11, the locking segments 61 as shown in Figure 4 of the '734 Patent may have curved inner and outer surfaces, but these components are not in the shape of a c-ring, since they are circumferentially substantially less than 180°. The locking segments would not be considered a c-ring by one skilled in the art.

Independent Claim 12 has been amended to recite that the fluid pressurized cam member has a cam surface tapered at a substantially constant angle with respect to the latch body, and has been further amended to recite a shoulder on the latch body moveable by an actuator, with the shoulder angled to urge the latch body and the at least one outer flank for engaging each tubular member radially outward.

The cited reference does not teach a cam surface tapered at a substantially constant cam angle, and does not teach a shoulder on the latch body to urge the latch body and the outer flanks for engaging each tubular member radially outward.

Dependent Claim 13 has been amended in the manner of Claim 9. Dependent Claim 14 is distinguishable from the cited reference for reasons explained above.

Independent method Claim 15 has been amended in a manner similar to Claim 1, and now recites that the projecting member guides the latch body and at least one outer load flank for engaging each tubular member along a desired trajectory generally parallel to a load flank adjacent the radially projecting member when the latch body is moved radially from the unlatch position to the latched position. As explained above, this feature is contrary to the disclosure of the '734 Patent, wherein the latch body and the load flanks for engaging each tubular member are not guided along a desired trajectory generally parallel to the adjacent load flanks. Dependent Claims 16 and 17 have been amended in a manner similar to Claims 6 and 4, respectively.

Amended Claim 1 is also considered patentably distinguishable from U.S. 4,516,795, which is similar to the '734 Patent. The Examiner contends that the reference teaches a radially trajectory member with a surface 40 and latching member S as shown in Figures 1 and 2. The Examiner contends that the surface 40 extends radially inward substantially beyond the outer load flank 23a on the tubular member. The specification discloses that both surfaces 40 and 41 are locking surfaces for moving from an unlatch position as shown in Figure 2 to a latched position. Surface 40 does not extend radially inward substantially beyond the load flank 23a. Most importantly, this reference does not disclose a combination for a trajectory member and a guide recess to guide the latch body and the at least one outer load flank for engaging each tubular member along the desired trajectory

generally parallel to the adjacent load flank when the latch body is moved radially from the unlatch position to the latch position, as set forth in the amended Claim 1. Claims 3, 4, 6, 9, 10 and 11 are considered distinguishable from the '795 Patent for reasons discussed above with respect to the '734 Patent.

Independent Claim 12, dependent Claims 13 and 14, independent method Claim 15 and dependent method Claims 16 and 17 are also considered patentable over the '795 Patent for reasons discussed above with respect to the '734 Patent.

Newly added Claim 18 depends on Claim 1 and recites conic surfaces for the guide recess and their relationship to surfaces of the radially projecting member, as set forth at page 8, commencing at line 23.

Newly added Claim 19 also depends on Claim 1 and sets forth specifics with respect to the radial dimension of the radially projecting member, as set forth at page 10, commencing at line 16.

Newly added Claim 20 depends on Claim 1 and recites that the radially projecting member is supported on the latch body.

Newly added Claim 21 recites that the radially projecting member is circumferentially elongate, and is in the form of a flange. Support for this limitation may be found at page 8, commencing at line 23. This feature of the radially projecting member provides substantial surface area for guiding the latch body, and distinguishes the claim from each of the references relied upon by the Examiner.

Dependent Claim 22 indicates that the load flanks on the latch body for engaging the load flanks on each tubular member are radially spaced when the latch body is in the unlatched position, as shown in Figure 2 of the present application. This feature further distinguishes over the reference cited by the Examiner.

Newly added Claim 23 indicates that the cam member has a substantially constant cam angle and acts on a radially outward surface of the latch body to urge the outer load flanks on the latch body for engaging each tubular member radially

inward to a latched position. This feature is also distinguishable from the references by the Examiner.

Newly added independent Claim 24 is similar to original Claim 1, but further recites the feature of amended Claim 6, namely an axial moveable cam member for simultaneously urging the outer load flank on the latch body for engaging each tubular member radially inward, with a cam member having a cam surface having tapered of a substantially circumstantially constant angle with respect to the latch body.


Newly added Claim 24 is considered patentably distinguishable from the cited references, which do not teach a cam member for simultaneously urging the load flank on the latch body for engaging each tubular member radially inward, and do not teach a cam member with a cam surface tapered at a substantially constant cam angle.

Dependent Claim 25 is directed to a combination of an actuator and shoulder on the latch body angled to urge the latch body and the at least one outer load flank for engaging each tubular radially outward. The feature of Claim 25 and the features of Claims 26-28 have been discussed above. Dependent Claim 29 is directed to a second axially moveable cam member as disclosed in the application for urging the latch body radially inward.

Claims 30-32 each depend upon Claim 24 but otherwise are the same as Claims 21-23 discussed above.

In view of the above, early allowance of the application is requested.

Respectfully submitted,


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